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ComEd
An Exelon Company

January 2, 2001

10 CFR 50.73

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

LaSalle County Station, Unit 2
Facility Operating License No. NPF-18
NRC Docket No. 50-374

Subject: Licensee Event Report

In accordance with 10 CFR 50.73(a)(2)(iv), Commonwealth Edison (ComEd) Company is submitting Licensee Event Report Number 00-006-00, Docket No. 050-374.

Attachment A provides the commitment(s) for this submittal.

Should you have any questions concerning this letter, please contact Mr. William Riffer, Regulatory Assurance Manager, at (815) 357-6761, extension 2383.

Respectfully,

Charles G. Pardee
Site Vice President
LaSalle County Station

Attachments: Licensee Event Report

cc: Regional Administrator - NRC Region III
NRC Senior Resident Inspector - LaSalle County Station

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Attachment A
Regulatory Commitment(s)

ComEd is committing to the following actions. Any other actions discussed in this submittal represent intended or planned actions by ComEd. They are described to the NRC for the NRC's information and are not regulatory commitments.

Regulatory Commitment(s)	*Tracking Number*
Revise TDRFP and MDRFP startup procedures to include HLA briefings.	ATM# 39916
Operations personnel will be trained on the startup controller response to large feedwater demand changes.	ATM# 39916
LOP-FW-04 will be revised to include the level of detail necessary for the qualified, but least experienced operator to put the TDRFP on line with the MDRFP running.	ATM# 39916

NRC FORM 366 (6-1998) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-
EXPIRES 06/30/2001

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U. S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1):	DOCKET NUMBER (2)	PAGE (3)
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TITLE (4) Unit 2 Scram on Turbine Control Valve Closure Due to High Reactor Water Level

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
12	01	00	00	006	00	01	02	01	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	1
POWER LEVEL (10)	033

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

☐ 20.2201(b)	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)	☐ 50.73(a)(2)(viii)
☐ 20.2203(a)(1)	☐ 20.2003(a)(3)(i)	☐ 50.73(a)(2)(ii)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(i)	☐ 20.2003(a)(3)(ii)	☐ 50.73(a)(2)(iii)	☐ 73.71
☐ 20.2203(a)(2)(ii)	☐ 20.2003(a)(4)	☒ 50.73(a)(2)(iv)	☐ OTHER
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(1)	☐ 50.73(a)(2)(v)	Specify n Abstract below or in NRC Form 366A
☐ 20.2203(a)(2)(iv)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Chuck Maney, Operating Staff	(815) 357-6761 Extension 2929

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	☒ NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines 16)

On December 1, 2000, at 1105 hours, during power ascension from refuel outage L2R08, operators were placing the 2B Turbine Driven Reactor Feedwater Pump (TDRFP) on line. A reactor water level transient occurred that resulted in an automatic high level trip of the main turbine and an associated reactor scram. All equipment operated as expected during the post-trip plant response.

The investigation has identified two root causes for this event. There was a human performance component, primarily related to inadequate evolution preparation including failure to perform a Heightened Level of Awareness (HLA) briefing. The second root cause is poor design combined with materiel conditions in the Feedwater and Reactor Level Control system that results in sluggish response of the control system leading to an increased operational challenge. Corrective actions include revising the TDRFP startup procedure, requiring a High Level Activity brief as part of the Reactor Feedwater start up procedure, and a review of the system design and material condition for improvements.

The safety consequences of this event were minimal. All systems operated as expected. A turbine trip is an analyzed condition of moderate frequency. The reactor was safely shut down and recovery performed without incident.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
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(If more space is required, use additional copies of NRC Form 366A)(17)

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor, 3489 Megawatts Thermal Rated Core Power

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

A. CONDITION PRIOR TO EVENT

Unit(s): 2 Event Date: 12/01/00 Event Time: 1105 Hours

Reactor Mode(s): 1 Power Level(s): 033
Mode(s) Name: Run

B. DESCRIPTION OF EVENT

On December 1, 2000, Unit 2 was starting up from refuel outage L2R08. The Unit was at 33 percent reactor power with the Motor Driven Reactor Feedwater Pump (MDRFP) operating and level control in automatic, single-element control on feed regulating valve 2FW005 (FRV). Feedwater flow was 3.6 million pounds mass per hour (Mlbm/hr) and the regulating valve was controlling reactor water level in a 4 inch band. Operators were attempting to start up and place in service the 2B Turbine Driven Reactor Feedwater Pump (TDRFP) [SJ].

No Heightened Level of Awareness (HLA) briefing was conducted. Instead, a pre-job briefing preceded the TDRFP start, but it has been evaluated as inadequate in preparing the crew for the evolution.

At 11:04:42, the reactor operator (RO) identified positive indication of TDRFP flow of about 2 Mlbm/hr on the 2B TDRFP flow indicator. Increasing reactor level was also observed. There was no immediately observable decrease in flow from the MDRFP through 2FW005. Post-event computer information confirms there was a discernable time delay of 1 to 2 seconds between 2B TDRFP injection and 2FW005's closing response.

At 11:04:52, reactor water level increased to the high level (nominal 40.5-inch) alarm.

At 11:05:02, as reactor water level continued to rise, the RO attempted to lower 2B TDRFP speed and flow by pressing the decrease pushbutton on the M/A station in accordance with LOP-FW-04 "Startup of Turbine Driven Reactor Feedwater Pump (TDRFP)." This did not result in a significant reduction in TDRFP flow.

At 11:05:12, as reactor water level continued to rise, the RO placed the startup controller of 2FW005 in manual and pressed the decrease button. MDRFP flow decreased, however, level was still rising and exceeded 50 inches. The RO pressed the decrease button a second time for 2FW005 and it appeared that the level rise had stabilized at approximately 52 inches. However, post-trip review of the computer data shows level was just below the actual trip setpoint and was actually continuing to rise at a very slow rate.

At 11:05:21, a high level turbine trip and associated reactor scram occurred at approximately 52.5 inches. The nominal high level turbine trip setpoint is 55.5 inches.

This event is reportable pursuant to 10 CFR 50.73 (a)(2)(iv); any event or condition that resulted in automatic actuation of the Reactor Protection System (RPS).

C. CAUSE OF EVENT

The investigation has identified two root causes for this event. There was a human performance component, primarily related to inadequate evolution preparation including the lack of an HLA briefing. The second root cause is poor design combined with materiel conditions in the Feedwater and Reactor Level Control system that challenged the operators with sluggish response to level changes.

D. SAFETY ANALYSIS

The safety consequences of this event were minimal. All Engineered Safety Feature (ESF) actuations occurred as designed during this event. No equipment failed to operate during this event. The potential for a turbine trip is an analyzed condition of moderate frequency (Updated Final Safety Analysis Report, Section 15.2.3, "Turbine Trip"). The reactor was operating below rated power, and therefore the transient was less severe than analyzed. The reactor was safely shut down and recovery performed without incident.

E. CORRECTIVE ACTIONS

Corrective Actions to Prevent Recurrence:

1) Revise TDRFP and MDRFP startup procedures to include HLA briefings. (ATM# 39916)

2) Operations personnel will be trained on the startup controller response to large feedwater demand changes. (ATM# 39916)

3) LOP-FW-04 will be revised to include the level of detail necessary for the qualified, but least experienced operator to put the TDRFP on line with the MDRFP running. (ATM# 39916)

4) A review and evaluation of the design and material condition of the feedwater level/speed control system is in progress. This will include short term evaluation of the feed regulation valve performance and evaluate the potential for a Lovejoy topworks upgrade. Longer term evaluations and actions will include replacement of the Bailey level control system with a digital system in L1R10 and L2R09 and the addition of supplemental filters in the TDRFP oil system. (ATM# 39916)

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F. PREVIOUS OCCURRENCES

LER 02-00-003 "Scram on Low Reactor Water Level Due to Loss of 2A Turbine Driven Reactor Feed Pump Flow"

At 0728 hours on June 22, 2000, LaSalle Unit 2 experienced an automatic reactor scram due to low reactor water level. The low reactor water level was caused by a loss of flow from the 2A TDRFP.

The root cause of the event was the intrusion of wear products into the high pressure control oil pressure regulating relief valve (2FW199A). The wear products became lodged between the relief valve seat and disk, which allowed the oil system pressure to be relieved. This caused the 2A TDRFP control valve to close, and the loss of flow from the 2A TDRFP. The corrective action was to install duplex oil filters on the 2A and 2B TDRFP control oil systems. The corrective action would not have prevented this event.

LER 02-99-002 "Automatic Scram Due to Failure of Reactor Water Level Control"

On August 21, 1999, at 2251 hours, during a down power, Unit 2 feedwater flow and reactor water level began to oscillate due to a failure of the 2A TDRFP hydraulic control system. Efforts by the reactor operator to restore level control were ineffective, and the reactor automatically scrammed on low reactor water level.

The root cause of the scram was attributed to a loose diaphragm cover plate on servo valve 2FW163AA. Human performance, command and control, and procedural adherence problems contributed to the event. The corrective action would not have prevented this event.

LER 01-98-015 "Manual Reactor SCRAM following level control transient"

While performing level control testing for the 1A TDRFP, automatic level control was lost when the RO attempted to place it in 3 element automatic control. At plus 50 inches increasing, the RO inserted a manual SCRAM due to the feedwater transient.

The cause of the scram was attributed to a failure of the control card associated with the Bailey Water Level Control System. The corrective actions were focused on troubleshooting and repairing the control card, and would not have prevented this event.

G. COMPONENT FAILURE DATA

Since no component failure occurred, this section is not applicable.